

--ABSTRACT OF THE DISCLOSURE

A magnetic gap is provided between a permanent magnet of a rotor and an auxiliary magnetic pole portion which is arranged adjacent to the permanent magnet in a peripheral direction. A gradual change in a magnetic flux density distribution of a surface of the rotor is obtained and a cogging torque and a torque pulsation are restrained. By obtaining a reluctance torque according to the auxiliary magnetic pole, a permanent magnet electric rotating machine in which the cogging torque and the torque pulsation are restrained can be obtained and further an electromotive vehicle having the permanent magnet electric rotating machine can be provided.--

Abstract of the Disclosure:

A magnetic gap is provided between permanent magnet of a rotor and an auxiliary magnetic pole portion which is adjacently arranged to the permanent magnet to a peripheral direction. A change in a magnetic flux density distribution of a surface of the rotor is performed moderately and a cogging torque and a torque pulsation are restrained. By obtaining a reluctance torque according to the auxiliary magnetic pole, a permanent magnet electric rotating machine in which the cogging torque and the torque pulsation are restrained can be obtained and further an electromotive vehicle having the permanent magnet electric rotating machine can be provided.